

## PATENT ABSTRACTS OF JAPAN

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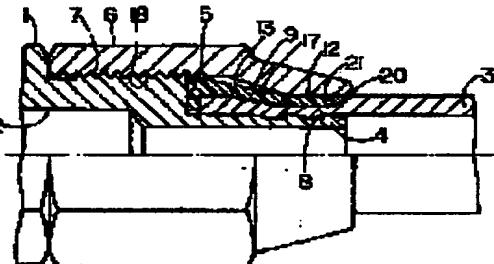
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## (54) HOSE CONNECTOR

## (57)Abstract:

PROBLEM TO BE SOLVED: To reuse a sleeve to fasten a hose.

SOLUTION: A sleeve 9 formed approximately in a C-shape is fitted in the tip of a hose 3. The sleeve 9 is provided with a slit opened at the rear end of the axially extending sleeve, and the slit is divided into a plurality of fastening part pieces 12. The inner surface of a fastening nut 6 has a press surface 17 to axially radially press the fastening part piece 12. When the fastening nut 6 is screwed in a connection tool 2 body, the fastening part piece 12 is pressed by a press surface and the fastening part piece 12 fastens the hose 3. When the fastening nut 6 is removed, the fastening part piece 12 is spread to its original state, the sleeve 9 is removed from the hose 3, and this constitution performs the reuse of the sleeve 9.



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## CLAIMS

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[Claim(s)]

[Claim 1] In the hose splicer which fits a hose over the hose connection of a splicer body, \*\*\*\*s, wears and uses a nut with a bundle as the above-mentioned splicer body from the outside of this hose, and fixed the above-mentioned hose. Attach a cross-section abbreviation C character-like sleeve in the spigot edge of the above-mentioned hose, and two or more secure-closing pieces separated by this slit while forming the slit which is prolonged in shaft orientations and carries out opening to this sleeve by the back end of a sleeve are formed. The hose splicer in which the press side which presses this secure-closing piece in the shaft diameter direction to the inside of the above-mentioned nut with a bundle was formed.

[Claim 2] The hose splicer according to claim 1 by which the circular sulcus is formed in the external surface of the above-mentioned sleeve.

[Claim 3] The hose splicer according to claim 1 or 2 by which the ridge which projects in the inner direction is formed in the inside of the above-mentioned sleeve.

[Claim 4] The hose splicer according to claim 1 by which the flange is prepared at the tip of the above-mentioned sleeve.

[Claim 5] The above-mentioned press side is a hose splicer including the inside of the insertion hole following the slideway which inclines in the shaft diameter direction toward the back end of a nut with a bundle, and this slideway according to claim 1.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the hose splicer for connecting hose, such as an air hose.

[0002]

[Description of the Prior Art] Various devices are made in order that hose splicers, such as an air hose connected with the air compressor, may ensure anchoring with the seal in a connection. For example, the sleeve made from plastics is attached in spigot one end of a hose, the inner step prepared in the inside of this nut with a bundle by carrying out [ it \*\*\*\*s and wears it and ] and advancing a nut with a bundle on a splicer body is applied to the back end of the above-mentioned sleeve, this sleeve is forced ahead, it pushes in strongly in tubed \*\*\*\* which formed the tip of this sleeve in the splicer body, and the splicer which crushes a sleeve and bound the periphery of a hose tight is known. Under the present circumstances, turning effort is transmitted to the back end which is in contact with the inner step of this nut with a bundle on the turning effort at the time of thrusting a nut with a bundle into a sleeve, and on the other hand, since rotation is prevented by pushing in a tip to the above-mentioned tubed \*\*\*\* strongly, the torque acted on this sleeve, and this sleeve was greatly deformed plastically and has been crushed by the condition of having attached, in the distorted condition in many cases.

[0003] On the other hand, since a diameter swells with the pressurization air which flows the interior by secular use, it deteriorates or it is damaged, it will be necessary to exchange air hoses etc. Under the present circumstances, in the hose splicer using the above sleeves, even if it is going to remove a nut with a bundle, it is going to substitute a hose and it is going to carry out the reuse of the above-mentioned sleeve, since in \*\*\*\*\* this sleeve can be deformed plastically by the last use, and can be twisted or is cut, it cannot carry out a reuse in many cases. Moreover, even if it asked the manufacturer side, it could not obtain by the reason of having not already manufactured, but the situation which must exchange the hose splicer itself to a new thing as a result might be produced.

[0004]

[Problem(s) to be Solved by the Invention] In the hose splicer which \*\*\*\*s the above nuts with a bundle, wears and carries out them, and connected hose, such as an air hose, in case the solution technical problem of this invention can attach a hose certainly and exchanges hose, it is offering the hose splicer which could be made to carry out the reuse of the sleeve etc.

[0005]

[Means for Solving the Problem] In the hose splicer which according to this invention fits a hose over the hose connection of a splicer body, \*\*\*\*s, wears and uses a nut with a bundle as the above-mentioned splicer body from the outside of this hose, and fixed the above-mentioned hose. Attach a cross-section abbreviation C character-like sleeve in the spigot edge of the above-mentioned hose, and two or more secure-closing pieces separated by this slit while forming the slit which is prolonged in shaft orientations and carries out opening to this sleeve by the back end of a sleeve are formed. The hose splicer in which the press side which presses this secure-closing piece in the shaft diameter direction to the inside of the above-mentioned nut with a bundle was formed is offered, and the above-mentioned technical problem is solved.

[0006]

[Embodiment of the Invention] In drawing, the male screw section (7) to have the hose connection (4) of the minor diameter for being formed approximately cylindrical and inserting a hose (3) in an end which has passage (2) inside, form a contact side (5) in the end face side of this hose connection (4), and for a hose splicer body (1) \*\*\*\*, wear and make a nut with a bundle (6) a

periphery is prepared. The other end side of this hose splicer body (1) is formed in various configurations and structure according to the device to be used.

[0007] Although number formation of the engagement edge (8) which engages with the inside of a hose (3) in drawing is carried out suitably, you may make it prepare the above-mentioned hose connection (4) an O ring etc. so that it may be stuck to the inside of a hose by pressure (illustration abbreviation).

[0008] A sleeve (9) is attached in the spigot edge of the above-mentioned hose (3). This sleeve (9) is formed in the shape of [ which has an opening slot (10) with other proper plastic material although formed by polyacetal in drawing ] a cross-section abbreviation C character. As shown in drawing 3 and drawing 4, while forming the slit (11) which is prolonged in shaft orientations from the middle of a sleeve, and carries out opening by the back end, it is divided into four secure-closing pieces (12) in two or more drawings separated by this slit (11). In addition, in case the width of face of the above-mentioned opening slot (10) and a slit (11) connects a hose so that a postscript may be carried out, it is made into the proper width of face whose diameter the back end of this sleeve can reduce certainly along the external surface of a hose. A circular sulcus (13) is formed in the external surface of this sleeve (9), and the peripheral surface (15) of path size is prepared in the peripheral face by the side of a tip rather than the back end side through the slant face (14). Moreover, although it extends in the shaft diameter direction in the tip side of this sleeve (9), the flange (16) with it is prepared and it is made in contact with this flange (16) in the end face of a hose (3), it can avoid forming the above-mentioned flange, as shown in drawing 5 . [ than the bore of a hose ] [ a bore smaller than the outer diameter of a hose and ] [ larger ]

[0009] The press side (17) which presses the secure-closing piece (12) of the above-mentioned sleeve (9) in the shaft diameter direction is formed in the inside of the above-mentioned nut with a bundle (6). This press side (17) includes the inside (21) of the insertion hole (20) which is formed following the slideway (19) and this inclination slideway (19) which incline in the shaft diameter direction toward the back end by the part of the method of inside from the female screw section (18) which \*\*\*\*s and engages with the male screw section (7) of the above-mentioned splicer body (1), and spreads along the external surface of a hose.

[0010] In order to connect a hose to the above-mentioned hose splicer, a sleeve (9) is first attached at the tip of a hose (3), the above-mentioned hose is fitted over a hose connection (4) to the location where a sleeve (9) hits a contact side (5) preferably, and a nut with a bundle (6) is \*\*\*\*ed, worn and used as a splicer body (1) ( drawing 1 R> 1 ). Under the present circumstances, if the flange (16) is formed in the sleeve (9), sleeve order will be known and it will be easy to insert in it. And if this nut with a bundle (6) is rotated and it is made to move to shaft orientations, the back end of a sleeve (9) will touch the inclination slideway (19) of the above-mentioned press side (17) first. With migration of the above-mentioned nut with a bundle (6), the secure-closing piece (12) of this sleeve is gradually pressed in the shaft diameter direction, and enters into an insertion hole (20), and the diameter of it is reduced by the inside (21), it binds a hose (3) tight, and connects certainly ( drawing 2 ). Under the present circumstances, if the circular sulcus (13) is formed in the external surface of the above-mentioned sleeve (9) as shown in drawing, the secure-closing piece (12) of the above-mentioned sleeve (9) can accompany the periphery of the above-mentioned hose, can be crooked easily, can bind this hose (3) tight certainly, and can raise the seal nature of a between [ hose connections (4) ].

[0011] If the above-mentioned nut with a bundle (6) is loosened in case hose (3) are exchanged, since the secure-closing piece (12) of the above-mentioned sleeve (9) is extended to the method of outside, it removes an old hose from a hose connection, samples a sleeve (9) from this old hose, attaches this sleeve (9) in the spigot edge of a new hose, and should just connect it as mentioned above.

[0012] As shown in drawing 5 , also when the flange is not formed in the sleeve (9), a hose (3) can be attached as shown in drawing 6 almost like \*\*\*\*.

[0013] Drawing 7 is the example in which the ridge (22) which projects in the inside of the above-mentioned sleeve (9) in the inner direction was formed. Although this ridge (22) is annularly prepared in the inside of a sleeve continuously, it may prepare in discontinuity or it may be formed in two or more punctiforms etc. If such a ridge (22) is prepared in a sleeve inside, omission of a hose can be prevented further.

[0014]

[Effect of the Invention] This invention is constituted as mentioned above and a cross-section abbreviation C character-like sleeve is attached in the spigot edge of a hose. Since two or more secure-closing pieces separated by this slit were formed and the press side which presses the above-mentioned secure-closing piece in the shaft diameter direction to the inside of a nut with a bundle was formed while forming the slit which is prolonged in shaft orientations and carries out opening to this sleeve by the back end of a sleeve If the above-mentioned hose is fitted over the hose connection of a splicer body and the above-mentioned nut with a bundle is \*\*\*\*ed, worn and used as a splicer body from the outside of this hose If an secure-closing piece is pressed in the shaft diameter direction, can bind a hose tight, and can connect it to a hose connection certainly and a nut with a bundle is removed according to the above-mentioned press side, since an secure-closing piece can be extended and can remove a sleeve from a hose, it can carry out the reuse of this sleeve. Moreover, when omission of a hose can be prevented much more certainly if this sleeve can accompany the periphery of a hose if the circular sulcus is formed in the periphery of a sleeve, and it can be crooked easily, this hose can be bound tight certainly and a ridge is formed in the inside of a sleeve, and a flange is prepared at the tip of a sleeve, this sleeve order is intelligible, and it is easy to attach.

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] the part which shows one example of this invention and shows the condition before screwing in a nut with a bundle — a vertical section front view.

[Drawing 2] The part which shows the condition of having fully \*\*\*\*ed the nut with a bundle, having worn it and having carried out it is a vertical section front view a part.

[Drawing 3] The perspective view of a sleeve.

[Drawing 4] A sleeve is shown, for (A), it is a sectional view and (B) is a side elevation.

[Drawing 5] The sectional view showing other examples of a sleeve.

[Drawing 6] The part which shows the condition of having fully \*\*\*\*ed the nut with a bundle, having worn it and having carried out it using the sleeve shown in drawing 5 is a vertical section front view a part.

[Drawing 7] The part which shows other examples is a vertical section front view a part.

**[Description of Notations]**

- 1 Hose Splicer Body**
- 3 Hose**
- 4 Hose Connection**
- 6 Nut with Bundle**
- 9 Sleeve**
- 11 Slit**
- 12 Secure-Closing Piece**
- 13 Circular Sulcus**
- 16 Flange**

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**DRAWINGS**

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**[Drawing 1]**